# Concentrations of Chemical Elements in PHEASANT TISSUES

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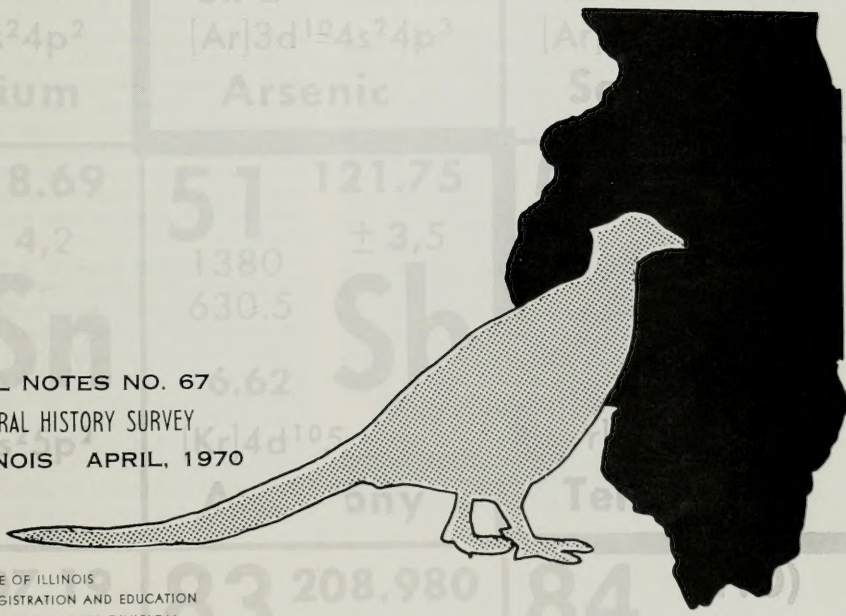

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**William L. Anderson and Peggy L. Stewart**

The elemental constituents of biological material are of vital concern to many disciplines of research, particularly physiology, nutrition, and medicine. It is common knowledge that certain inorganic ions must be available for plants and animals to grow, survive, and reproduce. Conversely, many ions are toxic when present in excess — an axiom of primary concern to researchers in environmental pollution. The advent of the Atomic Age, and the realization that all elements can be made radioactive, magnified the importance of ions in living material, especially in man.

Chemical elements that occur in living material are commonly divided into two groups, major elements and trace elements, the line of demarcation being somewhat arbitrarily set at 0.01 percent of an organism (Schroeder 1965:217), or at roughly 5,000–10,000 ppm in tissue ash. However, as Schroeder points out, this distinction is not always applicable when high concentrations of trace elements occur in special cases. Some trace elements — those having a physiological function for at least one organism — are known to be essential, while others — those for which no function has yet been discovered — are "nonessential." Many of the "nonessential" ions accumulate in living organisms as the organisms increase in age, a phenomenon that has recently been associated with certain diseases in man (Schroeder 1965:225-226).

This paper reports the concentrations of five major elements and 18 trace elements in selected body parts (blood, bones, fat, feathers, muscles, and internal organs) of 54 hen pheasants (*Phasianus colchicus*) collected from three areas in Illinois. The analyses were conducted during an investigation of the possible effects of inorganic ions on the distribution and abundance of pheasants in this midwestern state. Portions of the analyses, as well as analyses of soil, grit, and corn, have been published elsewhere under the title "Relationships between Inorganic Ions and the Distribution of Pheasants in Illinois" (Anderson & Stewart 1969). Because of their potential contribution to many areas of research, the analyses of the pheasants' body parts are presented in their entirety in this publication. So that comparisons of data may be made easily, all tables follow the Literature Cited section.

This paper is published by authority of the State of Illinois, IRS Ch. 127, Par. 58.12. William L. Anderson is an Associate Wildlife Specialist, Section of Wildlife Research, at the Illinois Natural History Survey, Urbana, and Peggy L. Stewart is a Research Associate at the Department of Physics, University of Tennessee, Knoxville.

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## METHODS

Pheasants used in this study were collected by night-lighting (Labisky 1968*b*) from three areas — good pheasant range, fair range, and poor range — in Illinois (Table 1). The birds were of three age groups: 4-month-old juveniles, 7-month-old juveniles, and adults (Table 1). Juveniles were separated from adults by bursal examination. The 4-month-old juveniles were further aged to the nearest week according to advancement of molt of the primary flight feathers (Labisky 1968*a*:465).

After being held overnight in a wooden crate, the pheasants were weighed, then sacrificed by decapitation. Samples of whole blood were collected at the time of sacrifice and saved for analysis. To obtain an indication of size, the wing length of each bird was recorded. This measurement was taken as the distance from the anterior edge of the wrist joint of the wing to the tip of the longest primary feather after the curve of this feather had been flattened out along a ruler (Baldwin, et al. 1931:77–78). The pheasants were then placed individually in polyethylene bags, frozen, and held for 2–4 months until they could be dissected.

Bony tissues that were analyzed were the right foot, bones of the right leg (femur, fibula, and tibiotarsus), skull (including beak), and sternum. Skeletal muscles utilized were those of the right leg (all muscles attached to the femur, fibula, and tibiotarsus) and the larger muscles of the right half of the sternum (*pectoralis thoracica, supracoracoideus*–ventral head, and *coracobrachialis posterior*, see Hudson & Lanzillotti 1964: 13–15, for detailed descriptions). A sample of fat was obtained from deposits around the neck, on the posteroventral surface of the sternal muscles, and in the viscera. Organs excised were the adrenals, brain, bursa (from juveniles only), gizzard (muscular portion and lining were separated), heart, intestine (including colon and ceca), kidneys, liver, lungs, pancreas, spleen, reproductive organs (ovary and oviduct), thyroids, and thymuses. Samples of feathers were obtained by clipping the larger feathers, mainly the primaries and secondaries, from both wings.

After being excised, the body parts were carefully freed of all extraneous material and rinsed, if necessary, in doubly distilled water (ion concentration $< 5$ ppm). They were then rolled on a paper towel to remove excess moisture and blood. The heart and liver were opened to remove clots of blood, and the gall bladder was removed from the liver. After most of the contents were stripped from the intestine, ceca, and colon, these organs were opened and thoroughly rinsed. Bony tissues and feathers were dried in an oven (65° C.) until successive weighings indicated they had stopped losing weight. The other body parts were weighed immediately after being excised and cleansed. All body parts were placed in polyethylene bags or vials and stored in a freezer.

Analyses of the body parts were conducted in the Spectrographic Laboratory, Department of Physics, University of Tennessee, Knoxville. The samples were thawed, then pooled according to body part, geographical region, and, when the samples were large enough, age of the birds. (The smaller body parts — all internal organs except gizzard muscles, intestines, and livers—were pooled at the time they were extracted from the birds. Leg muscles and sternal muscles were pooled on a weight basis after they had been reduced to ash.) Pooling was necessary because (1) many of the body parts were too small to be adequately analyzed individually, and (2) the cost, in time and funds, of analyzing each body part of each bird was prohibitive.

All samples were weighed immediately before ashing procedures began. The resulting weights, which seldom differed more than 3 percent from the ones recorded at the time the birds were dissected, served as a check on the accuracy of the wet (or dry) weights of the tissues.

The samples were exposed to temperatures of increasing intensity, then ashed in a muffle furnace at 550° C. for 12–72 hours, the length of time depending on the nature of the body part. Early phases of the ashing procedure were accelerated by adding distilled concentrated sulfuric acid to the samples. Concentrations of major elements in the ash were determined by flame photometric (calcium, magnesium, potassium, and sodium) and colorimetric (phosphorus) procedures. Analyses for trace elements were accomplished by atomic absorption (zinc) and emission spectrography (aluminum, barium, boron, cobalt, chromium, copper, iron, lead, manganese, molybdenum, nickel, silver, strontium, tin, titanium, vanadium, and zirconium). The ashing and analytical procedures were based on techniques developed by Peggy L. Stewart and Isabel H. Tipton (unpublished data) for analyzing human food (used for fat, feathers, muscles, and internal organs), feces (used for bones and feet), and urine (used for blood).

Care was taken throughout all phases of the dissecting, ashing, and analytical procedures to prevent contamination of the samples. Dissecting instruments were thoroughly washed and then rinsed in doubly distilled water before opening each bird; new scalpel blades were also used with each bird. Except when the dissecting instruments were used, the body parts were never allowed to touch metal. The samples were always stored in polyethylene containers, and fused silica dishes that had highly glazed surfaces were used to hold the samples during ashing procedures.

## FINDINGS AND DISCUSSION

### Validity of the Data

It should be emphasized that, as already mentioned, the analyses were conducted on pooled samples; the larger tissues were pooled according to geographical region and age of the birds, the smaller ones by region only. While this procedure has obvious limitations, the values obtained can be accepted with reasonable confidence. Theoretically, the concentrations of elements obtained for the pooled samples should approximate mean concentrations one would get if the tissues were analyzed individually. The consistency of many of the concentrations in comparable body parts—among birds of the three age groups and from the three regions — adds further confidence to the validity of the data (see tables).

However, a word of caution is in order. In biological material, mean concentrations of chemical elements, as well as means of percent ash of wet (or dry) weights, may be skewed toward high values (Tipton, et al. 1963:97). For this reason, Tipton, et al. (1963:100)

consider the median concentration to be a more appropriate measure of central tendency than the mean. This was true for at least some of the values for the pheasant tissues; for instance, concentrations of copper in the pooled samples of feet had a median value of <5 ppm, whereas the mean was an unrealistic >46 ppm (Table 13). In the following discussion, median concentrations in comparable body parts — among birds of the three age groups and from the three regions — are used in most instances. This, of course, does not overcome the possibility that concentrations in individual pooled samples may in themselves be skewed toward high values.

### Size and Weight of the Pheasants

Mean wing lengths and body weights indicated that pheasants from the three areas were of similar size and were in the same general physical condition (Table 1). The only exceptions were the two adults from Neoga, which were larger and heavier, on the average, than adults from Sibley and Humboldt. In general, and regardless of the area from which they were collected, adults were larger and heavier than juveniles.

### Percent Ash of the Wet (or Dry) Tissues

Weights of the ash of the pheasants' body parts are presented in grams and as percentages of the wet (or dry) weights in Table 2. Percent ash of the dry weight of bones had a median value of 62.86. Feet, which comprise considerable keratinous and other tissue as well as bone, contained less ash, the median value being 37.82 percent on a dry-weight basis. Spector (1956:73), after compiling the work of many researchers, reported the ash content of dry, fat-free bone from several species of vertebrates to be roughly 61–75 percent; the ash content of femurs from turkeys was approximately 70 percent. Thus, the percent ash of pheasant bones appears to be similar to percentages for bones of many other vertebrates.

Dried feathers from the pheasants contained a median of 1.29 percent ash (Table 2). The ash content of feathers is apparently greater than that of hair, which is also a keratinous appendage of the skin. Human hair has been reported to be 0.2–0.9 percent ash on a dry-weight, fat-free basis (Spector 1956:77).

Median concentrations of ash in whole blood and in soft body parts of the pheasants were seldom less than 1 percent, and never more than 2 percent, on a wet-weight basis (Table 2). The only exceptions were fat (median 0.28 percent), intestines (median 0.63 percent), and thyroid glands (median 0.41 percent). Pancreases and thymuses contained the highest concentrations of ash, the median values being 1.77 and 1.93, respectively. It is of special interest that the concentrations of ash in all internal organs except livers and bursae were greater for birds from Sibley — good pheasant range — than for birds from Neoga — poor range (Table 2). This finding is elaborated upon elsewhere (Anderson & Stewart 1969:262, 268).

The median values for percent ash of soft tissues of pheasants were, in general, similar to those for humans (Tipton & Cook 1963:105–130). Notable exceptions were concentrations of ash in adrenal and thyroid glands, which were 1½ times greater and 63 percent less, respectively, in pheasants than in humans.

### Concentrations of Elements in Tissues

Concentrations of the 23 elements in the various body parts are summarized in Tables 3–25. The concentrations are given in grams per 100 grams of ash (percentage in ash) for major elements and in micrograms per gram of ash (ppm in ash) for trace elements. To convert from ppm to percent, move the decimal four digits to the left. Values preceded by < or > indicate the concentrations were beyond the analytical capabilities of the techniques used; the values given are the lower or upper limits of detection attained.

Concentrations in the ash may be converted to a wet-weight (or dry-weight) basis with this calculation: concentration in ash × percent ash of wet (or dry) body part ÷ 100. If concentrations in dry tissue are desired for those tissues for which the percent ash is presented on a wet-weight basis (Table 2), percent ash of wet tissue can be converted to a dry-weight basis with the aid of data presented in the literature. It is suggested that percent ash of wet and of dry human tissues published by Tipton & Cook (1963:105–130) be used for such conversions.

Of the elements for which analyses were conducted, phosphorus was found to be the most abundant in the pheasants, the median concentrations in ash being more than 12 percent in all samples analyzed for this element except those of blood, fat, and feathers. Potassium, with median values exceeding 12 percent in blood and in most soft body parts, was also present in abundance. Calcium was highly abundant in bone, the median concentration being 34.13 percent, and moderately abundant in thyroid glands, in which the median concentration was 5.26 percent. Of the other two major elements, magnesium was most abundant in thyroid glands (median 8.42 percent) and sodium was most abundant in blood (median 16.88 percent). High concentrations (median 14.21 percent) of sodium also occurred in the thyroids. It is interesting that the ash of thyroid glands contained the highest concentrations for magnesium and the second highest for calcium, potassium, and sodium. Concentrations of phosphorus were not determined for these glands.

The highest median concentrations for nine of the trace elements occurred in the ash of gizzard linings (aluminum, 5,000 ppm; barium, 133; boron, 58; copper, 483; and titanium, 700) or of feathers (lead, 317 ppm; vanadium, >100; zinc, 28,125; and zirconium, 322). These body parts also contained the second or third highest median concentrations for six of the remaining elements. Of these, in the analyses conducted, iron and tin were most concentrated in the ash of lungs (>7,000 and 42 ppm, respectively), nickel and silver in fat (158 and 15, respectively), cobalt in bursae (106), manganese in livers (298), molybdenum in kidneys (124), and strontium in spleens (126). Chromium was extremely low in all tissues, the median values never exceeding 4 ppm. (Iron was probably more concentrated in blood than in lungs. Because of limitations of the analytical procedure used, actual concentrations of iron in blood were not determined.)

If the amounts of elements in ash are converted to concentrations in the wet body parts (dry for bones and feathers), bone, because of its high ash content, becomes the body part containing the highest concentrations of many elements. However, concentrations in unashed bone, as well as in feathers, were based on dry weights, while those in other unashed tissues were calculated on a wet-weight basis. Thus, concentrations in unashed bones and feathers are not strictly comparable to those in the wet tissues. If bone is excluded, concentrations of elements in wet (or dry) tissues exhibit patterns of distribution similar to, but in lesser quantities than, those in ash. Exceptions were concentrations in fat, intestines, and thyroid glands, where the percent ash was exceedingly low (Table 2). Consequently, these body parts contained relatively lower concentrations, when compared with those of other body parts, on a wet-weight basis than in ash.

A particularly interesting finding was the relatively greater abundance of inorganic ions in leg muscles than in sternal muscles. Calcium was 10 times greater, and six of the trace elements (aluminum, barium, cobalt, copper, vanadium, and zinc) at least 2 times greater in leg muscles. Only one element, titanium, was strikingly more abundant (5 times greater) in sternal muscles than in leg muscles.

The behavior of barium and strontium in the pheasants — their wide distribution and relatively uniform concentrations (Tables 9 and 20) — is similar to that of essential elements. Tipton & Cook (1963:142, 144) reported the same findings for humans, but added that this might be expected of strontium, which is chemically closely related to the essential element calcium. The high concentrations of barium and strontium in pheasants, as compared with those in humans, tempt speculation about the essentiality of these elements for birds. Schroeder (1965:218) has stated that strontium is essential or probably essential for mammals.

Changes in concentrations with increase in age of the pheasants were evident for several elements. Four of the major elements (calcium, magnesium, phosphorus, and sodium) were usually less abundant in the ash of intestines and livers of adults than in those of juveniles, perhaps because of higher metabolic rates in the younger birds. Concentrations of sodium also decreased in leg muscles and sternal muscles with increase in age. However, sodium became more concentrated in bones and feet as the birds became older. Other changes associated with increased age were increases in concentrations of aluminum in intestines, barium in bones, feet, intestines, and gizzard muscles, lead in bones and feet, strontium in intestines, and zirconium in bones. Of these five trace elements, only strontium is known to be essential or probably essential for mammals (Schroeder 1965:218). Schroeder (1965: 227) also reported that at least four of these elements, zirconium being the exception, accumulate in one or more tissues of humans with increasing age.

### Comparisons With Concentrations in Other Vertebrates

In those body parts that were comparable, the median concentrations of elements in pheasants exhibited many similarities to median values reported for humans by Tipton & Cook (1963:105–130) and Tipton et al. (1965:410–439). Noteworthy exceptions were magnesium in thyroids (9 times greater in pheasants), potassium in pancreases (2 times greater), and calcium and potassium in hearts and kidneys (40–50 percent less).

Among essential trace elements (those essential or probably essential for mammals, Schroeder 1965:218), important differences between pheasants and humans were in cobalt in kidneys and muscles (10–20 times greater in pheasants); manganese in livers, pancreases, and spleens (2–3 times greater); molybdenum in kidneys (4 times greater) and in livers (60 percent less); and zinc in kidneys, lungs, muscles, and spleens (50–70 percent less). In most of the body parts analyzed, copper and iron were 20–70 percent less abundant in pheasants than in humans. As the pheasants were allowed to bleed when they were sacrificed, their body parts would understandably contain less iron than those of humans.

"Nonessential" elements exhibiting differences between pheasants and humans were aluminum in livers, muscles, and spleens (2–5 times greater in pheasants); nickel in brains, livers, pancreases, and spleens (2–4 times greater); silver in brains, muscles, and spleens

(30 times greater); and titanium in livers, muscles, and spleens (10 times greater). In most of the body parts that were comparable, barium and strontium were 2–20 times greater, and lead was 30–70 percent less in pheasants than in humans. It is interesting that of the "nonessential" elements showing differences between pheasants and humans, all except lead were more abundant in the birds. As pheasants ingest appreciable amounts of soil (Harper & Labisky 1964: 726), as well as grit, an accumulation of "nonessential" elements in these birds might be expected.

Spector (1956:70–77) has summarized analytical work performed on many species of vertebrates. Although mammals were the most common animals on which analyses were conducted, birds, reptiles, amphibians, and fish were also listed. Concentrations of nine elements (the five major elements, plus copper, iron, manganese, and zinc) in six internal organs (brains, hearts, kidneys, livers, lungs, and spleens), muscle, and bone could be used for generalized comparisons between pheasants and other vertebrates. (Spector (1956:70) points out that the values he presents are rough approximations which are not subject to conclusive interpretation.) For these elements and these tissues, concentrations in pheasants agreed exceedingly well with those listed for other backboned animals. General exceptions were calcium in hearts (30–80 percent less abundant in pheasants), potassium and sodium in kidneys (35–55 and 50–70 percent less, respectively), and phosphorus and zinc in livers (30–55 and 10–90 percent less, respectively).

The *median* concentrations of elements in pheasant blood exhibited several striking differences from *mean* concentrations in mammalian blood reported by Bowen (1966:81–82). Notable examples were phosphorus (3 times greater in pheasants); cadmium, cobalt, and manganese (10–50 times greater); and nickel, silver, vanadium, and zinc (94–99 percent less).

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All tables are presented on the following pages.

# TABLES

TABLE 1. — Data for 54 hen pheasants from which body part were excised and analyzed for 23 chemical elements.

| | Sibley, Ill. | | | Humboldt, Ill. | | Neoga, Ill. | | |
|---|---|---|---|---|---|---|---|---|
| | Oct. 1966 | Jan. 1967 | | Jan. 1967 | | Oct. 1966 | Jan. 1967 | |
| Number of birds | 9 | 6 | 8 | 8 | 6 | 9 | 6 | 2 |
| Mean age (months) | 4.0±0.8* | ca.7 | >19† | ca.7 | >19† | 4.4±0.5* | ca.7 | >19† |
| Mean wing length (mm) | 220±2 | 221±4 | 226±3 | 223±2 | 226±3 | 221±1 | 222±2 | 230±5 |
| Mean body weight (grams) | 841±17 | 875±19 | 943±31 | 856±21 | 960±16 | 838±31 | 873±18 | 1,052±41 |
| Location (county, latitude and longitude) | Ford and Livingston 40°35′N., 88°23′W. | | | Coles 39°36′N., 88°19′W. | | Cumberland 39°19′N., 88°27′W. | | |
| Abundance of pheasants‡ | >100 | | | 1.1–10.0 | | 0.1–1.0 | | |

* Aged according to advancement of molt of the primary flight feathers (Labisky 1968a:465). Mean lengths of the 10th primary of October-collected juveniles from Sibley and Neoga were 84±17 and 118±8 mm, respectively.

† Pheasants more than 1 year old could be aged only as adults by the techniques employed. The youngest adults were approximately 19 months old.

‡ Pheasants observed per 100 miles of driving during April 1963 (Labisky & Anderson 1965:132).

TABLE 2. — Weights of ash, in grams (numerators) and as percentages of wet (or dry) weights (denominators), of pooled body parts of hen pheasants collected from three areas in Illinois. Percentages of dry weights are in parentheses.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Number of hens | 9 | 6 | 8 | 8 | 6 | 9 | 6 | 2 | | 23 | 14 | 17 |
| Blood | 1.8433 / 1.14 | 1.3325 / 1.17 | 1.8107 / 1.19 | 1.4813 / 1.18 | 0.9899 / 1.17 | 1.0942* / 1.17 | 1.3996 / 1.20 | 0.5591 / 1.26 | Adrenals | 0.0210 / 1.14 | 0.0116 / 1.15 | 0.0097 / 0.88 |
| Bones, leg | 37.86 / (82.12) | 17.75 / (57.98) | 33.58 / (75.78) | 33.09 / (77.62) | 19.43 / (59.41) | 34.63 / (72.86) | 18.71 / (57.97) | 7.51 / (66.33) | Brains | 1.1633 / 1.59 | 0.7442 / 1.53 | 0.7130 / 1.25 |
| Bones, skull | 12.10 / (57.62) | 9.99 / (62.99) | 13.76 / (59.90) | 13.06 / (60.23) | 9.58 / (59.20) | 11.20 / (58.74) | 8.96 / (61.09) | 3.47 / (60.94) | Bursae | 0.1040 / 1.77 | . . . | 0.0787 / 1.96 |
| Bones, sternum | 15.03 / (62.43) | 10.27 / (62.72) | 16.02 / (67.57) | 14.61 / (67.36) | 11.02 / (65.96) | 16.60 / (66.97) | 10.79 / (67.03) | 4.61 / (71.33) | Gizzard linings | 0.4345 / 0.91 | 0.2820 / 1.05 | 0.2744 / 0.78 |
| Fat | 0.1826 / 0.47 | 0.1231 / 0.29 | . . . | 0.1212 / 0.27 | . . . | 0.0782 / 0.59 | 0.1184 / 0.26 | 0.0536 / 0.21 | Hearts | 1.1640 / 1.40 | 0.6546 / 1.22 | 0.7968 / 1.29 |
| Feathers | 1.0883 / (1.45) | 0.8218 / (1.48) | 1.1774 / (1.28) | 1.0098 / (1.04) | 0.8245 / (1.29) | 1.0581 / (1.28) | 0.7518 / (1.34) | 0.3290 / (1.28) | Kidneys | 1.4670 / 1.76 | 0.6351 / 1.30 | 0.8922 / 1.44 |
| Feet | 18.32 / (42.01) | 14.65 / (49.13) | 13.94 / (31.54) | 17.88 / (44.24) | 10.71 / (33.62) | 19.70 / (43.61) | 9.84 / (32.56) | 3.89 / (33.58) | Lungs | 1.0251 / 1.36 | 0.4627 / 0.97 | 0.7232 / 1.28 |
| Gizzard muscles | 1.4249 / 1.14 | 0.8837 / 1.18 | 0.9977 / 1.11 | 0.9851 / 1.12 | 0.6826 / 1.06 | 1.2856 / 1.08 | 0.7996 / 1.12 | 0.2975 / 1.02 | Reproductive organs | 0.1088 / 1.40 | 0.0636 / 1.25 | 0.0556 / 1.27 |
| Intestines | 0.5346 / 0.66 | 0.2861 / 0.65 | 0.4429 / 0.72 | 0.2930 / 0.54 | 0.2177 / 0.61 | 0.3383 / 0.50 | 0.2179 / 0.58 | 0.0959 / 0.64 | Pancreases | 0.5261 / 1.94 | 0.2669 / 1.75 | 0.3247 / 1.77 |
| Livers | 1.9026 / 1.62 | 1.0578 / 1.25 | 1.3979 / 1.32 | 1.2740 / 1.17 | 1.0987 / 1.40 | 1.5059 / 1.26 | 1.0150 / 1.42 | 0.4355 / 1.52 | Spleens | 0.0811 / 1.65 | 0.0391 / 1.45 | 0.0618 / 1.56 |
| Muscles, leg | 9.48* / 1.52 | 7.03 / 1.53 | 9.48 / 1.52 | 8.34* / 1.57 | 7.32 / 1.52 | 11.04 / 1.53 | 7.35 / 1.53 | 2.85 / 1.59 | Thymuses | 0.1588 / 1.99 | . . . | 0.1472 / 1.86 |
| Muscles, sternal | 13.39 / 1.44 | 8.35* / 1.47 | 11.18* / 1.32 | 14.15 / 1.49 | 8.77* / 1.38 | 12.83 / 1.34 | 10.88 / 1.46 | 3.73 / 1.26 | Thyroids | 0.0040 / 0.54 | 0.0013 / 0.29 | 0.0019 / 0.41 |

* Sample consisted of body parts from one hen less than indicated above

TABLE 3. — Grams of calcium per 100 grams of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.78 | 0.42 | 0.63 | 0.73 | 0.79 | 0.75 | 0.63 | 0.74 | Adrenals | 1.19 | 1.29 | 2.16 |
| Bones, leg | 35.50 | 33.00 | 30.00 | 36.75 | 37.00 | 27.25 | 29.00 | 33.75 | Brains | 1.10 | 0.70 | 0.75 |
| Bones, skull | 26.00 | 33.50 | 33.00 | 39.75 | 35.00 | 34.50 | 26.00 | 33.50 | Bursae | 0.10 | ... | 0.03 |
| Bones, sternum | 33.00 | 36.00 | 37.00 | 35.50 | 23.00 | 34.50 | 36.50 | 35.50 | Gizzard linings | 2.10 | 4.10 | 1.50 |
| Fat | 0.25 | 0.25 | ... | ... | ... | 0.65 | 0.50 | ... | Hearts | 0.40 | 0.15 | 0.18 |
| Feathers | 5.00 | 3.75 | 5.25 | 3.75 | 4.25 | 5.00 | 6.00 | 7.00 | Kidneys | 0.40 | 0.35 | 0.35 |
| Feet | 34.00 | 27.00 | 37.00 | 36.75 | 36.00 | 31.25 | 37.25 | 35.00 | Lungs | 0.60 | 0.83 | 0.68 |
| Gizzard muscles | 1.05 | 0.53 | 0.65 | 0.43 | 0.53 | 0.43 | 0.50 | 0.65 | | | | |
| Intestines | 1.25 | 0.78 | 0.90 | 0.93 | ... | 1.65 | 1.03 | 1.00 | | | | |
| Livers | 0.38 | 0.33 | 0.28 | 0.33 | 0.35 | 0.53 | 0.25 | 0.33 | Pancreases | 0.55 | 0.78 | 0.73 |
| Muscles, leg | 2.95 | 2.40 | 3.30 | 3.05 | 4.10 | 2.48 | 3.00 | 3.65 | | | | |
| Muscles, sternal | 0.30 | 0.38 | 0.33 | 0.25 | 0.33 | 0.40 | 0.28 | 0.20 | Thyroids | 3.25 | 7.69 | 5.26 |

TABLE 4. — Grams of magnesium per 100 grams of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.53 | 0.45 | 0.52 | 0.56 | 0.55 | 0.54 | 0.50 | 0.36 | Adrenals | 0.88 | 0.86 | 1.75 |
| Bones, leg | 0.45 | 0.45 | 0.50 | 0.50 | 0.55 | 0.50 | 0.55 | 0.50 | Brains | 0.95 | 1.00 | 0.85 |
| Bones, skull | 0.60 | 0.50 | 0.45 | 0.70 | 0.55 | 0.65 | 0.55 | 0.65 | Bursae | 0.75 | ... | 0.40 |
| Bones, sternum | 0.35 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.60 | 0.50 | Gizzard linings | 0.60 | 0.65 | 0.56 |
| Fat | 0.40 | 0.88 | ... | ... | ... | 0.93 | 1.13 | ... | Hearts | 1.00 | 1.50 | 1.15 |
| Feathers | 4.00 | 3.38 | 3.13 | 2.88 | 2.88 | 3.13 | 3.38 | 2.13 | Kidneys | 1.45 | 0.60 | 0.90 |
| Feet | 0.45 | 0.60 | 0.50 | 0.65 | 0.55 | 0.65 | 0.50 | 0.55 | Lungs | 0.95 | 0.95 | 1.05 |
| Gizzard muscles | 1.25 | 1.15 | 1.35 | 1.30 | 1.20 | 1.45 | 1.25 | 1.25 | | | | |
| Intestines | 3.80 | 3.50 | 2.80 | 3.45 | ... | 3.20 | 2.25 | 1.55 | | | | |
| Livers | 1.15 | 1.35 | 0.80 | 1.05 | 1.40 | 1.05 | 0.65 | 0.80 | Pancreases | 1.80 | 1.75 | 1.90 |
| Muscles, leg | 1.25 | 1.25 | 1.30 | 1.30 | 1.15 | 1.35 | 1.35 | 1.30 | | | | |
| Muscles, sternal | 1.95 | 1.60 | 1.60 | 2.30 | 1.95 | 1.90 | 1.40 | 1.65 | Thyroids | 3.75 | 13.08 | 8.42 |

TABLE 5. — Grams of phosphorus per 100 grams of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 10.42 | 9.92 | 10.83 | 10.09 | 10.98 | 10.12 | 9.32 | 6.19 | | | | |
| Bones, leg | 13.75 | 13.00 | 11.38 | 13.38 | 15.50 | 12.88 | 13.38 | 12.38 | Brains | 17.25 | 19.88 | 19.63 |
| Bones, skull | 12.00 | 11.75 | 13.88 | 13.88 | 13.13 | 11.38 | 13.50 | 11.75 | | | | |
| Bones, sternum | 13.38 | 14.13 | 12.75 | 13.50 | 13.50 | 13.75 | 13.00 | 16.38 | Gizzard linings | 15.13 | 24.38 | ... |
| Fat | 3.40 | ... | ... | ... | ... | ... | ... | ... | Hearts | 17.03 | 19.13 | 17.25 |
| Feathers | 4.40 | 3.30 | 5.20 | 2.80 | 3.55 | 3.95 | 4.80 | 4.00 | Kidneys | 14.00 | 18.50 | 17.88 |
| Feet | 14.38 | 12.63 | 14.13 | 12.63 | 12.63 | 11.63 | 14.50 | 13.13 | Lungs | 16.75 | 19.88 | 17.25 |
| Gizzard muscles | 14.63 | 16.25 | 15.50 | 16.00 | 18.38 | 14.13 | 14.13 | 13.38 | | | | |
| Intestines | 30.12 | ... | 20.63 | 24.38 | ... | 22.50 | 18.25 | 18.25 | | | | |
| Livers | 14.13 | 6.75 | 11.63 | 14.25 | 14.50 | 14.50 | 12.38 | 10.25 | Pancreases | 21.25 | 9.30 | 26.25 |
| Muscles, leg | 15.63 | 19.50 | 31.87 | 18.75 | 16.00 | 19.13 | 20.38 | 28.25 | | | | |
| Muscles, sternal | 12.75 | 13.13 | 15.75 | 17.00 | 12.75 | 13.75 | 15.50 | 16.75 | | | | |

TABLE 6. — Grams of potassium per 100 grams of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 13.75 | 12.92 | 15.21 | 14.25 | 12.80 | 12.71 | 14.58 | 13.04 | Adrenals | 14.95 | 18.53 | 26.91 |
| Bones, leg | 0.19 | 0.15 | 0.10 | 0.14 | 0.15 | 0.13 | 0.14 | 0.09 | Brains | 18.00 | 16.00 | 21.20 |
| Bones, skull | 0.27 | 0.30 | 0.24 | 0.16 | 0.17 | 0.20 | 0.18 | 0.30 | Bursae | 11.10 | ... | 6.20 |
| Bones, sternum | 0.40 | 0.40 | 0.22 | 0.20 | 0.36 | 0.25 | 0.20 | 0.28 | Gizzard linings | 5.40 | 4.60 | 4.71 |
| Fat | 8.55 | 20.50 | ... | ... | ... | 5.25 | 17.00 | ... | Hearts | 15.50 | 17.50 | 12.30 |
| Feathers | 4.50 | 2.50 | 3.50 | 2.38 | 2.38 | 3.50 | 2.50 | 2.63 | Kidneys | 17.00 | 10.50 | 10.30 |
| Feet | 0.25 | 0.17 | 0.13 | 0.12 | 0.21 | 0.10 | 0.13 | 0.14 | Lungs | 17.90 | 14.50 | 18.50 |
| Gizzard muscles | 19.80 | 19.00 | 19.60 | 20.20 | 17.10 | 19.20 | 20.00 | 19.80 | | | | |
| Intestines | 19.80 | 17.80 | 12.10 | 15.30 | ... | 10.90 | 10.00 | 10.60 | | | | |
| Livers | 15.30 | 16.70 | 15.80 | 14.50 | 15.50 | 15.30 | 11.90 | 17.75 | Pancreases | 32.20 | 32.20 | 31.60 |
| Muscles, leg | 16.50 | 17.00 | 17.70 | 16.20 | 16.00 | 17.70 | 16.20 | 16.80 | | | | |
| Muscles, sternal | 21.00 | 16.90 | 16.60 | 31.40 | 17.00 | 20.00 | 14.00 | 19.50 | Thyroids | 21.89 | 35.00 | 26 84 |

TABLE 7. — Grams of sodium per 100 grams of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 19.58 | 16.67 | 17.08 | 17.11 | 15.85 | 19.77 | 16.49 | 16.39 | Adrenals | 6.81 | 9.96 | 13.76 |
| Bones, leg | 0.44 | 0.48 | 0.53 | 0.53 | 0.54 | 0.35 | 0.40 | 0.46 | Brains | 7.70 | 5.55 | 8.60 |
| Bones, skull | 0.51 | 0.56 | 0.79 | 0.47 | 0.74 | 0.47 | 0.53 | 0.62 | Bursae | 3.03 | ... | 1.78 |
| Bones, sternum | 0.35 | 0.43 | 0.53 | 0.35 | 0.55 | 0.47 | 0.34 | 0.58 | Gizzard linings | 1.90 | 1.35 | 1.97 |
| Fat | 1.68 | 3.08 | ... | ... | ... | 2.50 | 3.08 | ... | Hearts | 5.10 | 6.00 | 4.50 |
| Feathers | 6.50 | 4.50 | 5.38 | 5.00 | 4.63 | 6.00 | 5.13 | 6.25 | Kidneys | 6.75 | 4.65 | 5.10 |
| Feet | 0.89 | 0.85 | 0.94 | 0.74 | 0.80 | 0.48 | 0.81 | 1.00 | Lungs | 6.25 | 6.05 | 7.15 |
| Gizzard muscles | 4.50 | 4.00 | 4.35 | 4.35 | 3.45 | 4.35 | 4.00 | 3.80 | | | | |
| Intestines | 5.75 | 5.85 | 4.15 | 4.40 | ... | 4.00 | 3.20 | 3.70 | | | | |
| Livers | 4.65 | 4.65 | 4.20 | 5.15 | 4.70 | 8.80 | 2.70 | 4.65 | Pancreases | 4.00 | 2.35 | 4.25 |
| Muscles, leg | 3.30 | 2.85 | 3.05 | 2.90 | 2.75 | 3.50 | 2.70 | 3.20 | | | | |
| Muscles, sternal | 2.85 | 1.65 | 1.60 | 2.50 | 1.95 | 2.75 | 1.50 | 2.00 | Thyroids | 14.00 | 23.08 | 14.21 |

TABLE 8. — Micrograms of aluminum per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 106 | 182 | 48 | 134 | 81 | 174 | 183 | 182 | | | | |
| Bones, leg | <45 | <45 | <45 | <45 | <45 | <45 | <45 | <45 | Brains | 25 | 31 | 62 |
| Bones, skull | <45 | <45 | <45 | <45 | <45 | <45 | <45 | <45 | Bursae | 3,339 | ... | 5,000 |
| Bones, sternum | <45 | <45 | <45 | <45 | <45 | <45 | <45 | <45 | Gizzard linings | 5,000 | 4,395 | >8,600 |
| Fat | 770 | 1,012 | ... | 341 | ... | 409 | 413 | 626 | Hearts | 111 | 169 | 130 |
| Feathers | 5,000 | 6,096 | 5,000 | 2,519 | 5,000 | 5,000 | 5,000 | 5,000 | Kidneys | 116 | 188 | 141 |
| Feet | 198 | 1,011 | <45 | 419 | 606 | 134 | 659 | 274 | Lungs | 2,622 | 1,926 | 912 |
| Gizzard muscles | 111 | 140 | 113 | 76 | 40 | 160 | 67 | 144 | Reproductive organs | 131 | 787 | 293 |
| Intestines | 149 | 595 | 193 | 327 | 712 | 50 | 112 | 492 | Pancreases | 136 | 95 | 251 |
| Livers | 306 | 604 | 195 | 383 | 248 | 198 | 309 | 212 | Spleens | 57 | 1,825 | 1,150 |
| Muscles, leg | 111 | 123 | 94 | 78 | 150 | 97 | 121 | 120 | Thymuses | 71 | ... | 112 |
| Muscles, sternal | 55 | 41 | 42 | 64 | 53 | 70 | 54 | 41 | | | | |

TABLE 9. — Micrograms of barium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 1.78 | 0.12 | 0.03 | 0.19 | 1.67 | 0.01 | 0.46 | 19.06 | | | | |
| Bones, leg | 26 | 19 | 29 | 19 | 11 | 29 | 37 | 68 | Brains | 3 | 21 | 23 |
| Bones, skull | 19 | 21 | 49 | 30 | 32 | 54 | 48 | 81 | Bursae | 39 | ... | 44 |
| Bones, sternum | 110 | 15 | 30 | 23 | 24 | 20 | 15 | 72 | Gizzard linings | 91 | 133 | 163 |
| Fat | 16 | 67 | ... | 78 | ... | <0.5 | 48 | 165 | Hearts | 9 | 9 | 7 |
| Feathers | 169 | 174 | 158 | 92 | 173 | 87 | 62 | 54 | Kidneys | 4 | 14 | 8 |
| Feet | 29 | 29 | 44 | 26 | 45 | 37 | 56 | 107 | Lungs | 24 | 14 | 14 |
| Gizzard muscles | 7 | 46 | 54 | 41 | 43 | 28 | 57 | 67 | Reproductive organs | 104 | 47 | 112 |
| Intestines | 19 | 40 | 74 | 35 | 89 | 7 | 38 | 48 | Pancreases | 5 | 24 | 53 |
| Livers | 25 | 34 | 15 | 14 | 4 | 4 | 7 | 9 | Spleens | 11 | 132 | 38 |
| Muscles, leg | <0.5 | 15 | 51 | 53 | 52 | 24 | 34 | 35 | Thymuses | 9 | ... | 4 |
| Muscles, sternal | 16 | 11 | 11 | 30 | 17 | 35 | 16 | 21 | | | | |

TABLE 10. — Micrograms of boron per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 9 | 22 | 23 | 34 | 8 | 8 | 13 | 5 | | | | |
| Bones, leg | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Brains | 5 | 7 | 3 |
| Bones, skull | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Bursae | 39 | .. | 18 |
| Bones, sternum | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Gizzard linings | 55 | 58 | 59 |
| Fat | 7 | 69 | .. | 28 | .. | 32 | 72 | 225 | Hearts | 6 | 7 | 3 |
| Feathers | 81 | 30 | 22 | 33 | 42 | 138 | 33 | 52 | Kidneys | 5 | 4 | 4 |
| Feet | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Lungs | 4 | 5 | 3 |
| Gizzard muscles | 6 | 7 | 5 | 4 | 6 | 13 | 8 | 5 | Reproductive organs | 12 | 80 | 43 |
| Intestines | 4 | 15 | 13 | 5 | 56 | 15 | 8 | 19 | Pancreases | 4 | 6 | 4 |
| Livers | 8 | 6 | 9 | 13 | 3 | 5 | 5 | 6 | Spleens | 15 | 29 | 10 |
| Muscles, leg | 4 | 2 | 10 | 3 | 4 | 1 | 2 | 4 | Thymuses | 6 | .. | 4 |
| Muscles, sternal | 6 | 2 | 10 | 6 | 6 | 4 | 4 | 7 | | | | |

TABLE 11. — Micrograms of chromium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.30 | 0.25 | 0.12 | 1.55 | 0.55 | 0.62 | 0.95 | 1.84 | | | | |
| Bones, leg | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | Brains | 1.0 | <0.5 | 1.0 |
| Bones, skull | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | Bursae | <0.5 | .. | <0.5 |
| Bones, sternum | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | Gizzard linings | 1 | 1 | 1 |
| Fat | <0.5 | <0.5 | .. | <0.5 | .. | 1.0 | 2.0 | 1.4 | Hearts | 1.0 | <0.5 | 1.0 |
| Feathers | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | Kidneys | 1.0 | <0.5 | 2.5 |
| Feet | <4 | <4 | <4 | <4 | <4 | <4 | <4 | 15 | Lungs | <0.5 | 1.0 | <0.5 |
| Gizzard muscles | <0.5 | 1.0 | <0.5 | <0.5 | 1.0 | 1.0 | 1.7 | 1.5 | Reproductive organs | <0.5 | 1.2 | <0.5 |
| Intestines | 1.0 | <0.5 | <0.5 | 1.0 | 1.0 | <0.5 | <0.5 | 1.2 | Pancreases | <0.5 | 1.0 | 1.0 |
| Livers | 2 | 1 | 2 | 5 | 1 | 1 | 2 | 4 | Spleens | <0.5 | 1.0 | 37.6 |
| Muscles, leg | 0.8 | 1.5 | 1.0 | 1.4 | 1.3 | 1.5 | 1.0 | 0.5 | Thymuses | <0.5 | .. | 1.0 |
| Muscles, sternal | <0.5 | <0.5 | <0.5 | 0.5 | 1.0 | 0.5 | 0.5 | 1.0 | | | | |

TABLE 12. — Micrograms of cobalt per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.1 | 1.5 | 1.5 | 0.8 | 0.4 | 4.2 | 4.3 | 6.4 | | | | |
| Bones, leg | <2.5 | <2.5 | 4.0 | 10.0 | <2.5 | <2.5 | 4.0 | <2.5 | Brains | 5 | 2 | 9 |
| Bones, skull | 3.1 | 2.7 | <2.5 | 4.6 | 3.1 | <2.5 | <2.5 | 3.1 | Bursae | >120 | .. | 91 |
| Bones, sternum | 3.2 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | 2.7 | <2.5 | Gizzard linings | 65 | 5 | 8 |
| Fat | 14 | 13 | .. | >120 | .. | 37 | 17 | >120 | Hearts | 3 | 2 | 6 |
| Feathers | 111 | 15 | 76 | 26 | >120 | 103 | >120 | >120 | Kidneys | 6 | 24 | 21 |
| Feet | 17.6 | <2.5 | <2.5 | <2.5 | <2.5 | 4.9 | <2.5 | <2.5 | Lungs | 7 | 5 | 2 |
| Gizzard muscles | 31 | 5 | 79 | 9 | 3 | 47 | 1 | 98 | Reproductive organs | 1.9 | <0.3 | 7.6 |
| Intestines | 54 | 81 | 12 | 20 | >120 | 75 | 66 | 95 | Pancreases | 8 | 8 | 6 |
| Livers | 5 | 18 | 27 | 22 | 25 | 4 | 7 | 3 | Spleens | 4.0 | 0.6 | 3.5 |
| Muscles, leg | 38 | 6 | 73 | >120 | 53 | 35 | 11 | 78 | Thymuses | 4 | .. | 5 |
| Muscles, sternal | 19 | 100 | 22 | 23 | 62 | 15 | 15 | 31 | | | | |

TABLE 13. — Micrograms of copper per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 46 | 37 | 31 | 59 | 32 | 34 | 42 | 28 | | | | |
| Bones, leg | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | Brains | 103 | 125 | 94 |
| Bones, skull | <5 | <5 | <5 | <5 | 19 | <5 | <5 | <5 | Bursae | 35 | ... | 36 |
| Bones, sternum | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | Gizzard linings | 483 | 128 | >500 |
| Fat | 2 | 34 | ... | 69 | ... | 34 | 35 | 82 | Hearts | 170 | 184 | 149 |
| Feathers | 127 | 116 | 131 | 131 | 140 | 135 | 130 | 137 | Kidneys | 126 | 98 | 168 |
| Feet | 371 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | Lungs | 59 | 93 | 86 |
| Gizzard Muscles | 77 | 36 | 67 | 85 | 46 | 71 | 79 | 50 | Reproductive organs | 64 | 300 | 115 |
| Intestines | 68 | 148 | 121 | 112 | 178 | 126 | 121 | 77 | Pancreases | 129 | 128 | 109 |
| Livers | 133 | 183 | 249 | 244 | 172 | 211 | 209 | 211 | Spleens | 105 | 131 | 295 |
| Muscles, leg | 52 | 92 | 98 | 44 | 101 | 52 | 75 | 42 | Thymuses | 61 | ... | 48 |
| Muscles, sternal | 13 | 3 | 13 | 25 | 12 | 15 | 27 | 6 | | | | |

TABLE 14. — Micrograms of iron per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | >2,000 | >2,000 | >2,000 | >2,000 | >2,000 | >2,000 | >2,000 | >2,000 | Adrenals | 2,619 | 5,172 | 36,842 |
| Bones, leg | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | Brains | 1,250 | 2,436 | 1,969 |
| Bones, skull | 51 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | Bursae | 2,030 | ... | 1,400 |
| Bones, sternum | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | Gizzard linings | 5,400 | 6,200 | 5,500 |
| Fat | 633 | 1,800 | ... | 1,850 | ... | 2,330 | 1,850 | 2,650 | Hearts | 3,900 | 3,319 | 4,284 |
| Feathers | 4,067 | 4,667 | 5,500 | 5,933 | 3,950 | 4,200 | 4,500 | 4,000 | Kidneys | 4,683 | 2,983 | 5,300 |
| Feet | 200 | 270 | <50 | 131 | 109 | <50 | 265 | 125 | Lungs | >7,000 | >7,000 | >7,000 |
| Gizzard muscles | 1,900 | 2,380 | 2,380 | 2,950 | 2,690 | 1,770 | 2,560 | 3,680 | Reproductive organs | 5,600 | 6,367 | 3,517 |
| Intestines | 942 | 2,350 | 2,160 | 3,480 | 2,750 | 1,430 | 1,830 | 3,150 | Pancreases | 2,050 | 2,000 | 1,775 |
| Livers | 4,000 | 3,750 | 5,000 | 5,250 | 7,500 | 5,750 | 3,750 | 1,000 | Spleens | 6,575 | >7,000 | 5,400 |
| Muscles, leg | 1,001 | 619 | 2,647 | 1,417 | 1,941 | 733 | 1,194 | 1,165 | Thymuses | 1,919 | ... | 2,350 |
| Muscles, sternal | 420 | 588 | 513 | 581 | 569 | 474 | 525 | 834 | | | | |

TABLE 15. -- Micrograms of lead per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo | 7 Mo. | Adult | | All Ages | | |
| Blood | 19 | 21 | 22 | 21 | 19 | 20 | 21 | 21 | | | | |
| Bones, leg | <0.5 | 31.0 | 28.9 | <0.5 | 4.7 | 1.2 | 0.6 | 7.4 | Brains | 7 | 5 | 10 |
| Bones, skull | 1.5 | <0.5 | 29.3 | 0.6 | 5.6 | 2.1 | 1.3 | 9.1 | Bursae | 22 | ... | 2 |
| Bones, sternum | <0.5 | 0.6 | 60.4 | 0.6 | 8.6 | 1.1 | 0.8 | 13.4 | Gizzard linings | 132 | 107 | 477 |
| Fat | 3 | 28 | ... | 12 | ... | 54 | 40 | 151 | Hearts | 2.9 | 4.6 | <1.5 |
| Feathers | 168 | 266 | 500 | 62 | 358 | 500 | 478 | 276 | Kidneys | 6 | 17 | 19 |
| Feet | 0.5 | 0.6 | 51.3 | 0.6 | 7.0 | 1.5 | 1.8 | 6.6 | Lungs | 31 | 27 | 6 |
| Gizzard muscles | 43 | 20 | 44 | 31 | 29 | 9 | 6 | 38 | Reproductive organs | 116 | 76 | 47 |
| Intestines | 3 | 7 | 82 | 39 | 470 | 158 | 19 | 6 | Pancreases | 8 | 26 | 45 |
| Livers | 26 | 20 | 64 | 50 | 36 | 59 | 26 | 6 | Spleens | 120 | 58 | 36 |
| Muscles, leg | 72 | 12 | 14 | 7 | 41 | 13 | 18 | 15 | Thymuses | 13 | ... | 9 |
| Muscles, sternal | <1.5 | <1.5 | 3.5 | 3.4 | <1.5 | 5.7 | 3.4 | 5.7 | | | | |

TABLE 16. – Micrograms of manganese per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 10 | 76 | 72 | 69 | 88 | 13 | 68 | 72 | | | | |
| Bones, leg | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Brains | 20 | 24 | 33 |
| Bones, skull | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Bursae | 30 | ... | 14 |
| Bones, sternum | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Gizzard linings | 124 | 126 | 559 |
| Fat | 23 | 62 | ... | 350 | ... | 44 | 31 | 95 | Hearts | 21 | 37 | 24 |
| Feathers | 107 | 263 | 142 | 232 | 180 | 166 | 141 | 120 | Kidneys | 82 | 60 | 40 |
| Feet | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Lungs | 25 | 41 | 21 |
| Gizzard muscles | 22 | 23 | 32 | 51 | 47 | 64 | 41 | 107 | Reproductive organs | 72 | 204 | 98 |
| Intestines | 100 | 136 | 131 | 184 | 348 | 70 | 229 | 100 | Pancreases | 126 | 277 | 189 |
| Livers | 436 | 138 | 281 | 315 | 271 | 605 | 492 | 150 | Spleens | 59 | 183 | 38 |
| Muscles, leg | 20 | 9 | 24 | 9 | 10 | 12 | 8 | 10 | Thymuses | 24 | ... | 14 |
| Muscles, sternal | 10 | <4 | 13 | 9 | 11 | 11 | 10 | 10 | | | | |

TABLE 17. — Micrograms of molybdenum per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.2 | 0.8 | 0.3 | 0.1 | 0.5 | 0.1 | 0.1 | 0.1 | | | | |
| Bones, leg | <0.3 | 0.5 | <0.3 | <0.3 | 3.7 | 4.4 | 5.5 | 5.0 | Brains | <0.1 | 10.1 | 1.6 |
| Bones, skull | 1.1 | <0.3 | 8.7 | 3.9 | 5.8 | 3.3 | 1.4 | 6.6 | Bursae | <0.1 | ... | 9.6 |
| Bones, sternum | 8 | 3 | 4 | 6 | 8 | 1 | 3 | 6 | Gizzard linings | 32.8 | <0.1 | 4.5 |
| Fat | 0.5 | 0.1 | ... | <0.1 | ... | 5.7 | 2.5 | 0.6 | Hearts | 0.5 | <0.1 | 0.1 |
| Feathers | 4 | 10 | 55 | 10 | 5 | 51 | 25 | 27 | Kidneys | 124 | 124 | 122 |
| Feet | <0.3 | 3.0 | <0.3 | <0.3 | 7.7 | 0.8 | 2.6 | 3.6 | Lungs | <0.1 | <0.1 | <0.1 |
| Gizzard muscles | 1.0 | 1.2 | 6.1 | 2.3 | 3.0 | 2.7 | 1.4 | 0.4 | Reproductive organs | 6 | 9 | 28 |
| Intestines | <0.1 | 4.1 | 12.1 | 24.9 | 50.0 | 23.0 | 7.4 | 0.3 | Pancreases | 27 | 19 | 25 |
| Livers | 24 | 18 | 14 | 10 | 28 | 33 | 59 | 82 | Spleens | 43 | 1 | 6 |
| Muscles, leg | 1.4 | 0.1 | 6.6 | 0.2 | 0.1 | <0.1 | 1.1 | 0.4 | Thymuses | 11 | ... | 2 |
| Muscles, sternal | 1.0 | 0.3 | <0.1 | 0.5 | 1.0 | <0.1 | <0.1 | 1.8 | | | | |

TABLE 18. — Micrograms of nickel per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.01 | 0.04 | 75.18 | 0.06 | 0.01 | 0.04 | 0.01 | 0.01 | | | | |
| Bones, leg | 2 | 2 | 2 | 3 | 24 | 4 | 7 | 2 | Brains | 10 | 10 | 8 |
| Bones, skull | 11 | 10 | 14 | 3 | 3 | 2 | 7 | 3 | Bursae | 55 | .. | 40 |
| Bones, sternum | 6 | 5 | 5 | 6 | 4 | 2 | 3 | 2 | Gizzard linings | 100 | 57 | 185 |
| Fat | 9 | 67 | ... | 183 | ... | 271 | 225 | 134 | Hearts | 1 | 6 | 8 |
| Feathers | 68 | 56 | 81 | 86 | 84 | 78 | 83 | 53 | Kidneys | 1 | 20 | 8 |
| Feet | 7 | 2 | 10 | 3 | 5 | 2 | 3 | 10 | Lungs | 2 | 37 | 7 |
| Gizzard muscles | 10 | 34 | 5 | 36 | 42 | 19 | 10 | 13 | Reproductive organs | 17 | 52 | 47 |
| Intestines | 19 | 123 | 144 | 135 | 251 | 255 | 141 | 110 | Pancreases | 10 | 95 | 28 |
| Livers | 3 | 8 | 11 | 5 | 21 | 12 | 14 | 13 | Spleens | 11 | 17 | 19 |
| Muscles, leg | 36 | 3 | 80 | 28 | 28 | 8 | 451 | 51 | Thymuses | 20 | .. | 106 |
| Muscles, sternal | 9 | 2 | 3 | 1 | 9 | 1 | 2 | 5 | | | | |

TABLE 19. — Micrograms of silver per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.43 | 0.03 | 0.05 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | | | | |
| Bones, leg | 3 | 3 | 5 | 4 | 7 | 6 | 4 | 2 | Brains | 1 | 4 | 6 |
| Bones, skull | 4 | 4 | 3 | 4 | 3 | 2 | 4 | 6 | Bursae | 13 | .. | 2 |
| Bones, sternum | 6 | 3 | 4 | 5 | 5 | 3 | 3 | 3 | Gizzard linings | 4 | 5 | 25 |
| Fat | <0.2 | 15.5 | ... | 2.2 | ... | 15.5 | 15.7 | 14.7 | Hearts | <0.2 | 3.7 | <0.2 |
| Feathers | 23 | 10 | 13 | 5 | 13 | 18 | 14 | 12 | Kidneys | <0.2 | <0.2 | 0.5 |
| Feet | 4 | 3 | 4 | 5 | 1 | 8 | 6 | 3 | Lungs | 0.2 | 0.7 | 0.3 |
| Gizzard muscles | 2.5 | 1.4 | 6.7 | 3.1 | 2.6 | 9.2 | 0.5 | 7.7 | Reproductive organs | 7 | 7 | 7 |
| Intestines | 2 | 3 | 18 | 8 | 47 | 10 | 2 | 3 | Pancreases | <0.2 | 1.8 | 1.1 |
| Livers | 0.2 | <0.2 | 0.4 | 0.7 | 0.4 | 0.9 | <0.2 | <0.2 | Spleens | 6 | 8 | 1 |
| Muscles, leg | 13.6 | <0.2 | 16.8 | <0.2 | 8.7 | 5.5 | 16.3 | 15.7 | Thymuses | 0.9 | .. | 0.7 |
| Muscles, sternal | 6 | 6 | 8 | 9 | 10 | 13 | 10 | 12 | | | | |

TABLE 20. — Micrograms of strontium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 4.8 | 0.9 | 0.2 | 3.3 | 0.8 | 1.8 | 0.4 | 2.0 | | | | |
| Bones, leg | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | Brains | 16 | 6 | 5 |
| Bones, skull | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | Bursae | 44 | ... | 17 |
| Bones, sternum | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | Gizzard linings | 30 | 45 | 60 |
| Fat | 49 | 42 | ... | 198 | ... | 148 | 84 | 250 | Hearts | 37 | 23 | 33 |
| Feathers | 92 | 94 | 96 | 43 | 82 | 91 | 115 | 89 | Kidneys | 59 | 59 | 110 |
| Feet | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | Lungs | 97 | 82 | 80 |
| Gizzard muscles | 26 | 73 | 106 | 106 | 63 | 58 | 71 | 71 | Reproductive organs | 60 | 59 | 42 |
| Intestines | 30 | 45 | 273 | 38 | 200 | 30 | 55 | 104 | Pancreases | 13 | 24 | 40 |
| Livers | 24 | 48 | 44 | 44 | 15 | 22 | 20 | 64 | Spleens | 126 | 211 | 85 |
| Muscles, leg | 40 | 41 | 28 | 51 | 78 | 88 | 61 | 42 | Thymuses | 18 | ... | 41 |
| Muscles, sternal | 39 | 37 | 34 | 51 | 44 | 43 | 39 | 51 | | | | |

TABLE 21. — Micrograms of tin per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 3 | 7 | 3 | 8 | 7 | 2 | 2 | 2 | | | | |
| Bones, leg | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Brains | 6 | 4 | 5 |
| Bones, skull | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Bursae | 5 | .. | <2 |
| Bones, sternum | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Gizzard linings | <2 | 6 | 78 |
| Fat | <2 | <2 | .. | <2 | .. | <2 | <2 | <2 | Hearts | 4 | 5 | 5 |
| Feathers | 16 | 37 | 30 | 45 | 35 | 21 | 35 | 24 | Kidneys | 5 | 8 | 5 |
| Feet | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | Lungs | 47 | 89 | 42 |
| Gizzard muscles | <2 | <2 | 9 | <2 | <2 | <2 | <2 | <2 | Reproductive organs | 28 | 23 | 6 |
| Intestines | <2 | <2 | <2 | <2 | <2 | 10 | <2 | <2 | Pancreases | 4 | 4 | 4 |
| Livers | 14 | 13 | 26 | 31 | 19 | 15 | 9 | 11 | Spleens | 28 | 94 | 21 |
| Muscles, leg | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | Thymuses | 4 | .. | 4 |
| Muscles, sternal | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | | | | |

TABLE 22. — Micrograms of titanium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 2 | 2 | 3 | 2 | 5 | 1 | 5 | 31 | | | | |
| Bones, leg | 13 | 30 | 12 | <8 | 10 | 9 | 11 | 11 | Brains | 11 | 11 | 5 |
| Bones, skull | 22 | 22 | 16 | 21 | 13 | 13 | 16 | 15 | Bursae | >700 | ... | 341 |
| Bones, sternum | 22 | 10 | 15 | 8 | 20 | <8 | 8 | 10 | Gizzard linings | >700 | >700 | >700 |
| Fat | 74 | >700 | ... | 427 | ... | >700 | >700 | 146 | Hearts | 34 | 22 | 39 |
| Feathers | >700 | >700 | >700 | >700 | >700 | >700 | >700 | >700 | Kidneys | 19 | 3 | 27 |
| Feet | 21 | 24 | 14 | 20 | 17 | 23 | 41 | 16 | Lungs | 301 | 316 | 109 |
| Gizzard muscles | 55 | 44 | 99 | 50 | 282 | 63 | 60 | 87 | Reproductive organs | 41 | 15 | 87 |
| Intestines | 81 | 24 | 3 | 56 | 52 | 24 | 74 | 44 | Pancreases | 7 | 5 | 43 |
| Livers | 65 | 66 | 143 | 52 | 38 | 14 | 14 | 21 | Spleens | 38 | 109 | 68 |
| Muscles, leg | 69 | 103 | 33 | <1 | 101 | 55 | 3 | 67 | Thymuses | 24 | ... | 39 |
| Muscles, sternal | 122 | 448 | 103 | 358 | 277 | 700 | 303 | 483 | | | | |

TABLE 23. — Micrograms of vanadium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | | | |
| Bones, leg | 92 | 78 | 44 | 102 | 76 | 108 | 89 | 19 | Brains | <0.5 | 0.6 | 4.4 |
| Bones, skull | 47 | 48 | 140 | 113 | 120 | 50 | 137 | 94 | Bursae | 5 | .. | 16 |
| Bones, sternum | 113 | 60 | 138 | 136 | 139 | 50 | 60 | 137 | Gizzard linings | 32.7 | <0.5 | 22.7 |
| Fat | 5 | 4 | ... | 6 | ... | 1 | 1 | 1 | Hearts | 1.0 | 0.8 | 0.8 |
| Feathers | >100 | 96 | >100 | >100 | 33 | >100 | >100 | >100 | Kidneys | 1 | 2 | 4 |
| Feet | 121 | 128 | 42 | 140 | 118 | 37 | 130 | 122 | Lungs | 2.2 | 0.6 | 0.8 |
| Gizzard muscles | 1.4 | <0.5 | 8.6 | <0.5 | 0.9 | <0.5 | <0.5 | 13.0 | Reproductive organs | 2.1 | 1.4 | 0.5 |
| Intestines | 2.7 | <0.5 | 14.2 | 3.4 | 25.0 | 2.0 | 2.7 | 4.6 | Pancreases | 0.9 | 0.9 | <0.5 |
| Livers | 0.5 | 2.1 | 2.1 | 1.0 | 0.6 | 0.6 | 0.7 | 2.6 | Spleens | 2.8 | 3.1 | <0.5 |
| Muscles, leg | 2 | 15 | 18 | 38 | 20 | 13 | 15 | 12 | Thymuses | <0.5 | .. | 1.2 |
| Muscles, sternal | 0.5 | 3.1 | <0.5 | 2.1 | 1.3 | 4.0 | 1.2 | 1.2 | | | | |

TABLE 24. — Micrograms of zinc per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 40 | 39 | 39 | 35 | 34 | 34 | 35 | 35 | | | | |
| Bones, leg | 462 | 400 | 450 | 450 | 437 | 525 | 525 | 800 | Brains | 675 | 950 | 800 |
| Bones, skull | 637 | 525 | 525 | 450 | 525 | 450 | 525 | 612 | Bursae | 562 | ... | 344 |
| Bones, sternum | 500 | 475 | 400 | 487 | 500 | 525 | 537 | 912 | Gizzard linings | 925 | 637 | 349 |
| Fat | 365 | 689 | ... | 575 | ... | 776 | 612 | 1,140 | Hearts | 2,750 | 2,800 | 2,687 |
| Feathers | 23,750 | 23,750 | 27,500 | 27,500 | 37,500 | 28,750 | 33,750 | 32,500 | Kidneys | 1,312 | 1,225 | 1,425 |
| Feet | 475 | 450 | 612 | 475 | 675 | 500 | 837 | 600 | Lungs | 825 | 1,075 | 862 |
| Gizzard muscles | 3,125 | 3,625 | 3,250 | 3,000 | 3,000 | 2,875 | 2,750 | 3,250 | Reproductive organs | 552 | 769 | 689 |
| Intestines | 4,125 | 2,500 | 2,875 | 3,625 | 1,539 | 3,250 | 2,500 | 3,000 | Pancreases | 2,062 | 2,225 | 2,500 |
| Livers | 1,675 | 2,187 | 2,350 | 2,150 | 1,837 | 2,350 | 2,500 | 1,025 | Spleens | 573 | 757 | 521 |
| Muscles, leg | 1,300 | 1,175 | 1,300 | 1,150 | 1,175 | 1,050 | 1,200 | 1,112 | Thymuses | 403 | ... | 400 |
| Muscles, sternal | 425 | 500 | 1,200 | 437 | 450 | 437 | 600 | 500 | | | | |

TABLE 25. — Micrograms of zirconium per gram of ash in body parts of hen pheasants collected from three areas in Illinois.

| | Sibley | | | Humboldt | | Neoga | | | | Sibley | Humboldt | Neoga |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 Mo. | 7 Mo. | Adult | 7 Mo. | Adult | 4 Mo. | 7 Mo. | Adult | | All Ages | | |
| Blood | 1.04 | 0.05 | 0.63 | 0.30 | 0.49 | <0.05 | 0.28 | 0.55 | | | | |
| Bones, leg | 3 | 47 | 51 | 2 | 105 | 17 | 17 | 106 | Brains | 3 | 59 | 14 |
| Bones, skull | 188 | 119 | 163 | 23 | 126 | 82 | 90 | 450 | Bursae | 151 | ... | 45 |
| Bones, sternum | 9 | 20 | 177 | 271 | 25 | 24 | 9 | 96 | Gizzard linings | 291 | 251 | 438 |
| Fat | 74 | 374 | ... | 227 | ... | 385 | 14 | 355 | Hearts | 7 | 26 | 12 |
| Feathers | 145 | 343 | 439 | 247 | 258 | 300 | 375 | 350 | Kidneys | <0.5 | <0.5 | 1.9 |
| Feet | 3 | 17 | 131 | 75 | 46 | 118 | 12 | 1 | Lungs | 3 | 28 | 14 |
| Gizzard muscles | 363 | 25 | 49 | 28 | 56 | 29 | 32 | 74 | Reproductive organs | 161 | 132 | 303 |
| Intestines | 49 | 29 | 91 | 214 | 104 | 11 | 42 | 46 | Pancreases | 4 | 58 | 52 |
| Livers | 131 | 120 | 62 | 10 | 37 | 115 | 60 | 15 | Spleens | 10 | 68 | 25 |
| Muscles, leg | 29 | 27 | 3 | 2 | 8 | 1 | 24 | 47 | Thymuses | 98 | ... | 6 |
| Muscles, sternal | 6 | 10 | 7 | 11 | 5 | 47 | 59 | 217 | | | | |

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